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**Patent and Trademark Office**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/160,583	09/25/98	KAMU	0050-1545-0

022850 IM22/1212  
OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT  
FOURTH FLOOR  
1755 JEFFERSON DAVIS HIGHWAY  
ARLINGTON VA 22202

EXAMINER  
CREPEAU, J

ART UNIT	PAPER NUMBER
1745	1

DATE MAILED: 12/12/00

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
**09/160,583**

Applicant(s)

**Kamo**

Examiner  
**Jonathan Crepeau**

Group Art Unit  
**1745**



☒ Responsive to communication(s) filed on Sep 29, 2000

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 2-21 is/are pending in the application.

Of the above, claim(s) 6-18 and 20 is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 2-5, 19, and 21 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office action addresses claims 2-20, and newly added claim 21. Claims 6-18 and 20 remain withdrawn from consideration. Claims 2-5, 19, and 21 are newly rejected under 35 USC 112, first paragraph, and 35 USC 103, as necessitated by amendment. Accordingly, this action is made final.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 2-5, 19, and 21 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 19 and 21 recite that the active material is present "in an amount of 75 % by weight or more of the composition of the negative electrode". The Examiner concurs with Applicants in that the application provides sufficient support for a lower limit of 75 %, but the Examiner contends that the phrase "or more" does not find sufficient

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support in the application. As stated on pages 10 and 11 of the instant specification, the binder must be present in an amount of at least 0.1 wt%, and the negative electrode mixture may contain only active material and binder. Therefore, it may be ascertained that the upper limit of the active material weight percentage is 99.9 %. Since the amendatory language in claims 19 and 21 encompasses 100 %, this is considered to constitute new matter.

***Claim Rejections - 35 USC § 103***

4. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al (EP 284104). The reference teaches a secondary battery comprising a negative electrode material of  $\text{Cu}_2\text{S}$  or  $\text{Ag}_2\text{S}$  on page 4, line 3. As taught on page 4, lines 11-20, the electrode contains 75-95 % by volume of a combination of the solid electrolyte powder and electrode active material.

Kondo et al. do not explicitly teach that the electrode active material is present in an amount of 75 % by weight or more.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the weight percentage of electrode active material is a parameter that may be optimized by the artisan to achieve a particular result. In this case, it is well known to manipulate the amount of electrode active material in order to control the capacity and current-voltage characteristics of the battery. It has been held that when the general

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conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation (*In re Aller, Lacey, and Hall*, 105 USPQ 233).

*Response to Arguments*

Applicant's arguments filed September 29, 2000 have been fully considered but they are not persuasive. In response to applicant's argument that the Kondo et al. reference fails to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the nonaqueous electrolytic solution) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. *In re Van Guens*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

5. Claims 2-5, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al (U.S. Patent 5,702,845).

The reference teaches a secondary battery with a nonaqueous electrolytic solution in column 9, lines 39-60. In column 7, lines 44-60, the reference further teaches a positive electrode active material comprising a transition metal sulfide which may comprise copper, silver, or gold. The negative electrode may comprise a metal oxide, as taught in column 7, line 63. As disclosed

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in the Examples, the positive active material may be present in an amount of 92 % by weight of the positive electrode.

The reference does not explicitly teach that the *negative* electrode comprises a transition metal sulfide, or that the Cu, Ag, or Au is present in a range of 0.4 to 5 (or 0.6 to 2) per unit of sulfur.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be able to ascertain that the positive electrode of Kawakami et al. is capable of functioning as a negative electrode. In any secondary (rechargeable) battery, it is well known that the “positive” and “negative” electrode designations are dependent on whether the battery is being charged or discharged. Since the electrode materials of Kawakami et al. are substantially identical to those recited in the instant claims and disclosed in the instant specification (see page 13 for disclosure of a metal oxide), the “positive” and “negative” designations are dependent on the mode of operation of the battery. Accordingly, it is seen that the transition metal sulfide of Kawakami et al. may also function as a negative active material.

Regarding the stoichiometric compositional ranges set forth in the instant claims, these ranges are not seen to distinguish the claims from the reference. As detailed in the rejection below, the existence of compounds which fall within these ranges in the battery of Kawakami et al. may be easily ascertained by the artisan. Additionally, the stoichiometry of the compositions may be routinely optimized by the artisan to affect the basic characteristics of the compounds and

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the resulting batteries. Accordingly, these ranges and compositions are not seen to distinguish over the reference.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al. as applied to claims 2-5, 19, and 21 above, and further in view of Kondo et al., or Plichta et al (U.S. Pat. 5,154,990).

Kawakami et al. do not explicitly teach a negative electrode material of CuS, Cu<sub>2</sub>S or Ag<sub>2</sub>S.

As discussed above, Kondo et al. teach a secondary battery comprising a negative electrode material of Cu<sub>2</sub>S or Ag<sub>2</sub>S on page 4, line 3.

Plichta et al. teach a secondary battery comprising a negative electrode material of CuS in column 3, lines 8-11.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the disclosures of Kondo et al. and Plichta et al. exemplify that CuS, Cu<sub>2</sub>S and Ag<sub>2</sub>S are well-known transition metal sulfides comprising copper and silver, and furthermore, are useful in secondary batteries as a negative electrode material. Accordingly, it is deemed that the artisan would have sufficient motivation to use these materials in the battery of Kawakami et al.

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*Conclusion*

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (703) 305-0051. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisors, Steve Kalafut or Carol Chaney, can be reached at (703) 308-0433 and (703) 305-3777, respectively. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900.



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Documents may be faxed to (703) 306-3429. The official fax number for documents of extreme importance is (703) 305-3599 (it will take longer to receive documents faxed to this number; therefore the first number is preferred).

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

JSC

December 11, 2000

  
STEPHEN KALAFUT  
PRIMARY EXAMINER  
GROUP 1700